

PTO/SB/21 (08-03)

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<b>TRANSMITTAL FORM</b> (to be used for all correspondence after initial filing)	Application Number	09/579,736	<b>RECEIVED</b> <b>CENTRAL FAX CENTER</b> <b>MAY 02 2005</b>
	Filing Date	May 28, 2000	
	First Named Inventor	Christian Buchler et al.	
	Art Unit	2653	
	Examiner Name	Aristotelis M. Psitos	
	Attorney Docket Number	PDB90025	
Total Number of Pages in This Submission			

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below): _____
Remarks Response to Notice of Non-Compliant Appeal Brief mailed March 31, 2005		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	Patricia A. Verlangieri, Attorney Thomson Inc.	
Signature	<i>Patricia A. Verlangieri</i>	
Date	May 2, 2005	

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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PTO/SB/17 (10-03)

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**FEE TRANSMITTAL**  
**for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 500**Complete if Known**

Application Number	09/579,736
Filing Date	May 28, 2000
First Named Inventor	Christain Buchler et al.
Examiner Name	Aristotellis M. Psitos
Art Unit	2653
Attorney Docket No.	PD990025

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MAY 02 2005

**METHOD OF PAYMENT (check all that apply)**☐ Check ☐ Credit card ☐ Money ☐ Other ☐ None  
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☒ Charge fee(s) indicated below ☒ Credit any overpayments  
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☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	790	2001	389	Utility filing fee	
1002	350	2002	170	Design filing fee	
1003	550	2003	265	Plant filing fee	
1004	790	2004	389	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

**SUBTOTAL (1)**

(\$ 0)

**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

Total Claims		Extra Claims		Fee from below		Fee Paid	
Independent Claims							
Multiple Dependent							

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	88	2201	43	Independent claims in excess of 3
1203	300	2203	145	Multiple dependent claim, if not paid
1204	88	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

**SUBTOTAL (2)**

(\$ 0)

\*or number previously paid, if greater. For Reissues, see above

**FEE CALCULATION (continued)****3. ADDITIONAL FEES**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	60	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1612	2,520	1612	2,520	For filing a request for reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	430	2252	210	Extension for reply within second month	
1253	980	2253	475	Extension for reply within third month	
1254	1,530	2254	740	Extension for reply within fourth month	
1255	2,080	2255	1,005	Extension for reply within fifth month	
1401	340	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	500
1403	300	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,370	2453	665	Petition to revive - unintentional	
1501	1,370	2501	665	Utility issue fee (or reissue)	
1502	490	2502	240	Design issue fee	
1503	650	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Director	
1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)	
1808	180	1808	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

**SUBTOTAL (3)**

(\$ 500)

**SUBMITTED BY****Complete (if applicable)**

Name (Print/Type)	Paride A. Ventarieri	Registration No. (Attorney/Agent)	42,201	Telephone	(609) 734-6867
Signature	<i>Paride A. Ventarieri</i>	Date	May 2, 2005		

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is so filed and by the USPTO to process an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1480, Alexandria, VA 22313-1450.

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Serial No. 09/579,736

PD990025

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Patent Application**

Inventors : **Christian Buchler et al.**

Serial No. : **09/579,736**

Filed : **May 26, 2000**

Title : **APPARATUS FOR SCANNING OPTICAL RECORDING  
MEDIA USING A DIFFERENTIAL PHASE DETECTION  
METHOD**

Examiner : **Aristotelis M. Psitos**

Art Unit : **2653**

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Patricia A. Verlangieri

**APPELLANTS' BRIEF UNDER 37 C. F. R. § 1.192**

On July 29, 2004, Appellants filed a timely Notice of Appeal (that was received in the United States Patent and Trademark Office on July 29, 2004) from the action of the Examiner finally rejecting pending claims 1-17. The Appellants herein file this Brief in accordance with 37 C. F. R. § 1.192.

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**1. IDENTIFICATION OF REAL PARTY IN INTEREST**

The real party in interest for the above-identified application is Thomson Inc., which is the assignee of the assignee of record for this application, Deutsche Thomson-Brandt GmbH.

**2. IDENTIFICATION OF RELATED APPEALS OR INTERFERENCES**

To the best of appellants' knowledge, there are no appeals or interferences that will be directly affected by, or will have a bearing on the decision of this appeal.

**3. STATUS OF THE CLAIMS**

The above-identified application was filed on May 26, 2000 claiming priority under 35 U. S. C. § 119 to German Patent Application No. 199 24 733.1 filed May 31 1999. Claims 1-17 were pending. In a Preliminary Amendment filed on May 26, 2000 claims 1-17 were amended.

A first Office Action was mailed September 10, 2003 (Paper No. 7), in which claims 1-17 were rejected.

In appellants' response to the first Office Action, dated March 10, 2004, claims 1, 8, 14 and 17 were amended.

The Examiner in a second Office Action was mailed April 29, 2004 (Paper No. 9), finally rejected claims 1-17.

The status of the claims is as follows:

Twice amended claims 1, 8, 14 and 17. Once amended claims 2-7, 9-13 and 15-16. All claims stand finally rejected.

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**4. STATUS OF THE AMENDMENTS**

No amendments were made to the claims after final rejection. All amendments were entered.

**5. SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 is directed to an apparatus for reading from or writing to optical recording media. See appellant's specification at page 1, lines 7-11. The apparatus includes a photodetector 10, a phase forming unit 13, an edge sequence detector 14 and a signal blocking unit 15. See appellant's specification at FIG. 1 and page 8, line 6 to page 9, line 16. The photodetector 10 includes at least two detector elements 10A, 10B, 10C, 10D. See appellant's specification at FIG. 1 and page 8, lines 23-32. The phase forming unit 13 detects a phase difference between output signals of the photodetector 10. See appellant's specification at page 9, lines 2-4. The edge sequence detector 14 detects a sequence of edges of the output signals of the photodetector. See appellant's specification at page 9, lines 4-8. The signal blocking unit 15, in response to the edge sequence detector 14, blocks output signals of the phase forming unit 13, when an impermissible sequence of edges is detected. See appellant's specification at page 9, lines 8-16.

Independent claim 10 is directed to a method for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16.

Dependent claim 11 is directed to a method for determining a correct track error signal using a phase detection method. See appellant's specification at

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page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16. The impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. See appellant's specification at page 4, lines 29-33.

Dependent claim 12 is directed to a method for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16. The impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. See appellant's specification at page 5, lines 9-16.

## **6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1. The Examiner has rejected claims 1-10, 13 and 17 as anticipated under 35 U. S. C. § 102(a) by Shiyuuichi (JP 10-198981).
2. The Examiner has rejected claims 1-3, 6, 9, 10 and 17 as anticipated under 35 U. S. C. § 102(e) by Kuribayashi (U. S. 6,317,396).
3. The Examiner has rejected claims 11-12 as being unpatentable under 35 U. S. C. § 103(a) over Shiyuulchi (JP 10-198981) in view of Kuribayashi (U. S. 6,317,396).

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4. The Examiner has rejected claims 11-12 as being unpatentable under 35 U. S. C. § 103(a) over Kuribayashi (U. S. 6,317,396) in view of Koji (JP 10-208262).

## **7. ARGUMENT**

1. Rejection of claims 1-10, 13 and 17 under 35 U. S. C. § 102(a) over Shiyuuichi (JP 10-198981).

### **Claims 1-9**

Shiyuuichi discloses a tracking signal detector. See Shiyuuichi in Abstract, Problem to be Solved, lines 1-3. The time sequence of a single signal is checked for 3T and 4T signals. See Shiyuuichi in Abstract, Solution, lines 1-7. The tracking signal is annulled when 3T and 4T signals with low signal-to-noise ratios are detected. See Shiyuuichi in Abstract, Solution, lines 7-10.

In appellant's claims 1-9, an apparatus is described for reading from or writing to optical recording media. See appellant's specification at page 1, lines 7-11. The apparatus includes a photodetector 10, a phase forming unit 13, an edge sequence detector 14 and a signal blocking unit 15. See appellant's specification at FIG. 1 and page 8, line 6 to page 9, line 16. The photodetector 10 includes at least two detector elements 10A, 10B, 10C, 10D. See appellant's specification at FIG. 1 and page 8, lines 23-32. The phase forming unit 13 detects a phase difference between output signals of the photodetector 10. See appellant's specification at page 9, lines 2-4. The edge sequence detector 14 detects a sequence of edges of the output signals of the photodetector. See appellant's specification at page 9, lines 4-8. The signal blocking unit 15, in response to the edge sequence detector 14, blocks output signals of the phase forming unit 13, when an impermissible sequence of edges is detected. See appellant's specification at page 9, lines 8-16.

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Shiyuuichi does not describe or suggest an apparatus for reading from or writing to optical recording media including a photodetector having at least two detector elements, a phase forming unit for detecting a phase difference between output signals of the photodetector, an edge sequence detector for detecting a sequence of edges of the output signals of the photodetector and a signal blocking unit that, in response to the edge sequence detector, blocks output signals of the phase forming unit when an impermissible sequence of edges is detected. Rather, Shiyuuichi only teaches checking the timing sequence of a single signal for 3T and 4T signals and annulling the tracking signal when 3T and 4T signals with low signal-to-noise ratios are detected. Therefore, appellant's submit that claims 1-9 are not anticipated by Shiyuuichi.

Claims 10, 13 and 17

Appellant's claims 10, 13 and 17 disclose a method for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16.

Shiyuuichi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected. Rather, Shiyuuichi only teaches checking the timing sequence of a single signal for 3T and 4T signals and annulling the tracking signal when 3T and 4T signals with low signal-to-noise ratios are detected. Therefore, appellant's submit that claims 10, 13 and 17 are not anticipated by Shiyuuichi.

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2. Rejection of claims 1-3, 6, 9, 10 and 17 under 35 U. S. C. § 102(a) over Kuribayashi (U. S. 6,317,396).

Claims 1-3, 6 and 9

Kuribayashi discloses a tracking error generating device. See Kuribayashi at column 1, lines 5-8. In the tracking error generating device, evaluation target signals processed from light receiving element output signals are individually checked for amplitude or line width. See Kuribayashi at column 2, lines 48-67.

In appellant's claims 1-3, 6 and 9, an apparatus is described for reading from or writing to optical recording media. See appellant's specification at page 1, lines 7-11. The apparatus includes a photodetector 10, a phase forming unit 13, an edge sequence detector 14 and a signal blocking unit 15. See appellant's specification at FIG. 1 and page 8, line 6 to page 9, line 16. The photodetector 10 includes at least two detector elements 10A, 10B, 10C, 10D. See appellant's specification at FIG. 1 and page 8, lines 23-32. The phase forming unit 13 detects a phase difference between output signals of the photodetector 10. See appellant's specification at page 9, lines 2-4. The edge sequence detector 14 detects a sequence of edges of the output signals of the photodetector. See appellant's specification at page 9, lines 4-8. The signal blocking unit 15, in response to the edge sequence detector 14, blocks output signals of the phase forming unit 13, when an impermissible sequence of edges is detected. See appellant's specification at page 9, lines 8-16.

Kuribayashi does not describe or suggest an apparatus for reading from or writing to optical recording media including a photodetector having at least two detector elements, a phase forming unit for detecting a phase difference between output signals of the photodetector, an edge sequence detector for detecting a sequence of edges of the output signals of the photodetector and a signal blocking unit that, in response to the edge sequence detector, blocks output signals of the phase forming unit when an impermissible sequence of edges is

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detected. Rather, Kuribayashi teaches a completely different arrangement in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width. Therefore, appellant's submit that claims 1-3, 6 and 9 are not anticipated by Kuribayashi.

Claims 10 and 17

Appellant's claims 10 and 17 disclose a method for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16.

Kuribayashi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected. Rather, Kuribayashi teaches a completely different method in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width. Therefore, appellant's submit that claims 10 and 17 are not anticipated by Kuribayashi.

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3. Rejection of claims 11-12 under 35 U. S. C. § 103(a) over Shiyuuichi (JP 10-198981) in view of Kurlbayashi (U. S. 6,317,396).

Claim 11

Shiyuuichi discloses a tracking signal detector. See Shiyuuichi In Abstract, Problem to be Solved, lines 1-3. The time sequence of a single signal is checked for 3T and 4T signals. See Shiyuuichi in Abstract, Solution, lines 1-7. The tracking signal is annulled when 3T and 4T signals with low signal-to-noise ratios are detected. See Shiyuuichi in Abstract, Solution, lines 7-10.

In appellant's claim 11, a method is disclosed for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16. The impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. See appellant's specification at page 4, lines 29-33.

Shiyuuichi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. Rather, Shiyuuichi only teaches checking the timing sequence of a single signal for 3T and 4T signals and annulling the tracking signal when 3T and 4T signals with low

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signal-to-noise ratios are detected. Therefore, appellant's submit that claim 11 patentable over Shiyuichi.

Kuribayashi discloses a tracking error generating device. See Kuribayashi at column 1, lines 5-8. In the tracking error generating device, evaluation target signals processed from light receiving element output signals are individually checked for amplitude or line width. See Kuribayashi at column 2, lines 48-67.

Kuribayashi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. Rather, Kuribayashi teaches a completely different method in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width. Therefore, appellant's submit that claim 11 patentable over Kuribayashi.

Further, since Shiyuichi only teaches checking the timing sequence of a single signal for 3T and 4T signals and annulling the tracking signal when 3T and 4T signals with low signal-to-noise ratios are detected and Kuribayashi only teaches detecting tracking error signals based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width, the combination of these references does not describe or suggest applicant's arrangement recited in claim 11. In particular, claim 11 recites a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero

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crossing in another of the signals. Thus, claim 11 is not obvious over Shiyuuichi in view of Kuribayashi.

### Claim 12

In appellant's claim 12, a method is disclosed for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16. The impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. See appellant's specification at page 5, lines 9-16.

Shiyuuichi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. Rather, Shiyuuichi only teaches checking the timing sequence of a single signal for 3T and 4T signals and annulling the tracking signal when 3T and 4T signals with low signal-to-noise ratios are detected. Therefore, appellant's submit that claim 12 is patentable over Shiyuuichi.

Kuribayashi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of

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checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. Rather, Kuribayashi teaches a completely different method in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width. Therefore, appellant's submit that claim 12 patentable over Kuribayashi.

Further, since Shiyuuichi only teaches checking the timing sequence of a single signal for 3T and 4T signals and annulling the tracking signal when 3T and 4T signals with low signal-to-noise ratios are detected and Kuribayashi only teaches detecting tracking error signals based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width, the combination of these references does not describe or suggest applicant's arrangement recited in claim 12. In particular, claim 12 recites a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. Thus, claim 12 is not obvious over Shiyuuichi in view of Kuribayashi.

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4. Rejection of claims 11-12 under 35 U. S. C. § 103(a) over Kuribayashi (U. S. 6,317,396) in view of Koji (JP 10-208262).

Claim 11

Kuribayashi discloses a tracking error generating device. See Kuribayashi at column 1, lines 5-8. In the tracking error generating device, evaluation target signals processed from light receiving element output signals are individually checked for amplitude or line width. See Kuribayashi at column 2, lines 48-67.

In appellant's claim 11, a method is disclosed for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16. The impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. See appellant's specification at page 4, lines 29-33.

Kuribayashi discloses a tracking error generating device. See Kuribayashi at column 1, lines 5-8. In the tracking error generating device, evaluation target signals processed from light receiving element output signals are individually checked for amplitude or line width. See Kuribayashi at column 2, lines 48-67. In appellant's claim 11, a method is disclosed for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16. The impermissible sequence is a sequence

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of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. See appellant's specification at page 4, lines 29-33.

Kuribayashi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. Rather, Kuribayashi teaches a completely different method in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width. Therefore, appellant's submit that claim 11 patentable over Kuribayashi.

Koji describes a tracking signal detector. See Koji in Abstract, Problem to be Solved, line 1. The tracking error signal is detected based on whether a phase difference occurs within a prescribed time. See Koji in Abstract, Solution, lines 1-9.

Koji does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. Rather, Koji only teaches detecting a tracking error signal based on whether a phase difference occurs within a prescribed time. Therefore, appellant's submit that claim 11 patentable over Koji.

Further, since Kuribayashi only teaches detecting tracking error signals based on evaluation target signals processed from light receiving element output

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signals that are individually checked for amplitude or line width and Koji only teaches detecting a tracking error signal based on whether a phase difference occurs within a prescribed time, the combination of these references does not describe or suggest applicant's arrangement recited in claim 11. In particular, claim 11 recites a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals. Thus, claim 11 is not obvious over Kuribayashi in view of Koji.

#### Claim 12

In appellant's claim 12, a method is disclosed for determining a correct track error signal using a phase detection method. See appellant's specification at page 1, lines 7-11. The method includes checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence. See appellant's specification at page 9, lines 6-10. Thereafter, the outputting of a phase value is prevented when the impermissible sequence is detected. See appellants' specification at page 9, lines 10-16. The impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. See appellant's specification at page 5, lines 9-16.

Kuribayashi does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when

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the impermissible sequence is detected, where the impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. Rather, Kuribayashi teaches a completely different method in which tracking error signals are detected based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width. Therefore, appellant's submit that claim 12 patentable over Kuribayashi.

Koji does not describe or suggest a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. Rather, Koji only teaches detecting a tracking error signal based on whether a phase difference occurs within a prescribed time. Therefore, appellant's submit that claim 11 patentable over Koji.

Further, since Kuribayashi only teaches detecting tracking error signals based on evaluation target signals processed from light receiving element output signals that are individually checked for amplitude or line width and Koji only teaches detecting a tracking error signal based on whether a phase difference occurs within a prescribed time, the combination of these references does not describe or suggest applicant's arrangement recited in claim 12. In particular, claim 12 recites a method for determining a correct track error signal using a phase detection method including the steps of checking a sequence of zero crossings whose phases are detected with regard to impermissible sequence and preventing the outputting of a phase value when the impermissible sequence is detected, where the impermissible sequence is a sequence of more than one

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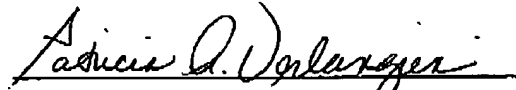
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pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals. Thus, claim 12 is not obvious over Kuribayashi in view of Koji.

#### **8. CONCLUSION**

In view of the above, it is respectfully submitted that the rejection of claims 1-17 should be reversed.

Respectfully submitted,



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**APPENDIX I - APPEALED CLAIMS**

1. An apparatus for reading from or writing to optical recording media, comprising:
  - a photodetector with at least two detector elements;
  - a phase forming unit for detecting a phase difference between output signals of the photodetector;
  - an edge sequence detector for detecting a sequence of edges of the output signals; and
  - a signal blocking unit for blocking an output signal of the phase forming unit when an impermissible sequence of edges is detected.
2. The apparatus according to Claim 1, wherein the signal blocking unit blocks a signal which is derived from the output signal of the phase forming unit or is used to form the output signal.
3. The apparatus according to Claim 2, further comprising diagonal summation signal forming units having inputs connected to the detector elements of the photodetector and providing the output signal.
4. The apparatus according to Claim 3, further comprising edge detectors and phase angle detectors, to which the output signals are fed and whose outputs are connected to the phase forming unit and to the edge sequence detector.
5. The apparatus according to Claim 2, further comprising edge detectors and phase angle detectors, to which the output signals are fed and whose outputs are connected to the phase forming units and to the edge sequence detector.

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6. The apparatus according to Claim 1, further comprising diagonal summation signal forming units having inputs connected to the detector elements of the photodetector and providing the output signal.
7. The apparatus according to Claim 1, further comprising edge detectors and phase angle detectors, to which the output signals are fed and whose outputs are connected to the phase forming unit and to the edge sequence detector.
8. The apparatus according to Claim 1, wherein the phase forming unit and the edge sequence detector are integrated.
9. The apparatus according to Claim 1, further comprising a fault indicator connected to an output of the edge sequence detector.
10. A method for determining a correct track error signal utilizing a phase detection method, comprising the steps of:
  - checking a sequence of zero crossings whose phases are detected with regard to impermissible sequences; and
  - preventing the outputting of a phase value when an impermissible sequence is detected.
11. The method of Claim 10, wherein a sequence of more than two successive zero crossings of one of the signals without the occurrence of a zero crossing in another of the signals is an impermissible sequence.
12. The method of Claim 10, wherein a sequence of more than one pair of zero crossings within a predetermined time period, a pair of zero crossings consisting of a zero crossing of one of the signals and a succeeding zero crossing of another one of the signals, is an impermissible sequence.

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13. The method of Claim 10, wherein an error indication signal is generated as a function of the accumulation of impermissible sequences.
14. The method of Claim 10, wherein the signals are evaluated in a predetermined clock cycle, a zero crossing being present if one of two successive values of the signal lies above, and the other of said values lies below, a reference value, and the temporal positions of the zero crossing is interpolated using these two values.
15. The method of Claim 14, wherein the phase value between a zero crossing of one signal of the signals and a zero crossing of another of the signals is determined from the respective interpolated temporal position and the number of clock cycles lying between the zero crossings.
16. The method of Claim 10, further comprising the step of extrapolating the track error signal in the event of an impermissible sequence.
17. The method of Claim 10, wherein the phase detection method is a differential phase detection method, the signals to be compared being the diagonal summation signals.

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